

1274-12



AIR CONDITIONING · REFRIGERATION · HEATING

Carrier Services TO INDUSTRY ... AIR CONDITIONING.

SCOPE OF EQUIPMENT, ENGINEERING, AND DISTRIBUTION

A glance down the list on the opposite page will bring to you a quick summary of the varied industrial uses of Carrier Air Conditioning, Refrigeration and Heating.

Ready reference is given to the type of Carrier equipment for each application.

By running through the pages of the condensed catalog, you will find a complete range of equipment from the room ventilator handling a few hundred cfm to Heat Diffusers delivering Btu in hundreds of thousands—from completely self-contained room air conditioners to central station installations handling thousands of cfm—and from drinking water coolers employing $\frac{1}{8}$ hp. condensing units to 1100-ton centrifugal refrigerating machines cooling water for plant processes or cooling brine to temperatures as low as 130° F. below zero.

The self-contained units are completely manufactured in the Carrier factory and require only placement and service connections. The central station systems for the conditioning of large spaces or complete buildings are most adaptable for requirements which may be considered more or less permanent or stable. Unitary equipment, for spaces large or small, is most adaptable to spaces which may be expected to grow since it is easiest to add units for extensions or for other departments.

Carrier markets the equipment which it manufactures, and for which it contracts, through its Direct Engineering and Sales Organization and through its authorized Distributors, Dealers and Agents—at home and abroad in 99 different countries throughout the world.

Carrier's objective is to achieve economy of distribution, to provide appropriate service within easy reach of the consumer and to make available to all the years of experience gained from \$145,000,000.00 of industrial air conditioning, refrigerating, heating and air cleaning installations which are giving satisfaction in more than 200 industries.

Carrier's interests range, therefore, from the simple over-the-counter sale of packaged equipment to contracts for complete installations in co-operation with Architects, Engineers and the staffs of industrial organizations.

CARRIER CORPORATION,
Weather Makers to the World
South Geddes Street
SYRACUSE • NEW YORK



JD 89-68714 TCF

REFRIGERATION · UNIT HEATING

TEMPERATURE and HUMIDITY CONTROL	<p>Year-'Round Air Conditioning—For Bakeries, Beverage Plants, Cereals, Chemicals, Confectioneries, Cosmetics, Dairies, Electrical Manufacturing, Films, Hospital Wards, Laboratories, Offices, Paint, Paper, Pharmaceuticals, Rubber, Telephone Exchanges, Rayon and other industries.</p> <p>Heating — Humidifying — Cleaning — Circulating—For Cereals, Film Drying, Pharmaceuticals, Printing, Shoes, Textiles, Tobacco and other industries.</p> <p>Cooling — Dehumidifying — Cleaning — Circulating—For Beverage Plants, Chemicals, Confectioneries, Furs, Meat Packing, Mines, Pharmaceuticals and other industries.</p>	<p>Page</p> <p>4, 5, 6, 8, 11, 14</p> <p>4, 5, 6, 14</p> <p>4, 5, 6, 8, 10, 11, 14</p>		
REFRIGER- ATION	<p>Used with Air Conditioning Equipment—(See Cooling and Dehumidifying above.)</p> <p>Product Cooling—For Bars, Beverages, Dairy Products, Foods, Fruits, Meats.</p> <p>Processing—For Chemicals, Ice Making, Pharmaceuticals, Sugar and other products.</p> <p>Storage—For Bakeries, Beverages, Confectioneries, Dairy Products, Flowers, Furs, Meats, Pharmaceuticals, Sugar and other products.</p>	<p>7, 8, 9, 11</p> <p>7, 8, 9, 10, 11</p> <p>5, 6, 7, 8, 9, 10, 11</p> <p>8, 9, 10, 11</p>		
HEATING	<p>Unit Heaters—For Air Craft Hangars, Chemicals, Confectioneries, and Cosmetic Factories, Dairies, Dye Houses, Electrical Products Rooms, Floor Coverings, Factories, and Food Products Buildings, Foundries, Furniture Factories, Garages, Laundries, Lumber Mills, Machine Shops, Metal Shops, Paint Factories, Printing Rooms, Paper and Rubber Factories, Steel Mills, Terminals, Textile Mills, Warehouses, Woodworking Rooms and other Industrial Buildings.</p>	<p>12, 13</p>		
SPECIAL APPLICATIONS	<table><tr><td>Dehydration Locker Storage Smoke Houses Heat Interchangers</td><td>Non-Freeze Coil Commercial Refrigeration</td></tr></table>	Dehydration Locker Storage Smoke Houses Heat Interchangers	Non-Freeze Coil Commercial Refrigeration	<p>11</p>
Dehydration Locker Storage Smoke Houses Heat Interchangers	Non-Freeze Coil Commercial Refrigeration			

JD 89-68714 TCF

FOR Bakeries, Beverage Plants, Cereals, Chemicals, Confectionery, Cosmetics, Electrical Products, Films,

Refrigeration Equipment Usually Required for

For Industries Where Required Conditions of Air Fall Within Comfort Zones

SUMMER AIR CONDITIONING, WINTER HEATING OPTIONAL

4 to 18 Tons—2000 to 9000 cfm

TYPE 41B

Application—This self-contained unit provides complete summer air conditioning, cooling, dehumidifying, ventilating, and circulation of air. Heating coils and humidifier may be added for winter operating. Filter section is optional.

Operation—A V-type "Freon-12" refrigerating condensing unit with water-cooled, cleanable condenser provides cooling medium to cool and dehumidify air. Automatic controls may be supplied as required. Unit is available for evaporative condensing.

Installation—Unit normally installed outside conditioned space with ducts used for air distribution. Electric connections required for motors, water connections for condenser cooling water and condensate drain. When operated in winter, steam and additional water connections are required.

Specifications—Unit is sectional—low initial cost.

DIMENSIONS AND WEIGHTS—TYPE 41B

Size	DIMENSIONS IN INCHES			Weight in Lb.
	Width	Depth	Height	
41B2	58 $\frac{3}{4}$	21	72 $\frac{1}{2}$	2200
41B3	83 $\frac{3}{4}$	28	76	3100
41B6	76 $\frac{3}{4}$	28	83	3700
41B7	102 $\frac{1}{2}$	28	83	4700

SUMMER, WINTER OR YEAR-'ROUND AIR CONDITIONING

2 to 45 Tons—100,000 Btu and up

TYPES 39Q and 39R

Application—For direct expansion, chilled water, well water. These units are widely used for industrial buildings, small factories, etc. Extreme compactness and complete application flexibility are primary features.

Advantages—Minimum operating attention, acceptable quietness and high efficiency are important advantages. The built-in recirculation may be employed or not.

Type 39Q—Floor mounted to be located within or outside the conditioned space—with ducts.

Type 39R—Suspended from the ceiling located within or outside the conditioned space—with ducts.

Specification Features—Assembly is sectional—low installation cost.

Fans are of special high-efficiency design and performance. They are double-inlet, centrifugal, electrically welded steel, and die-formed.

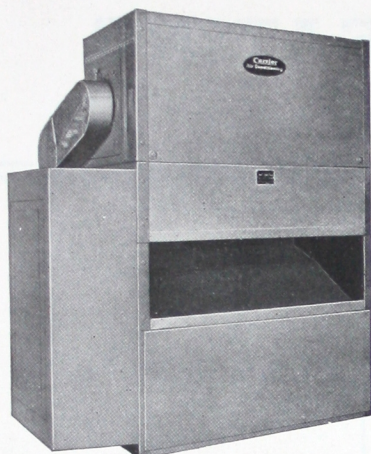
Cooling and Heating coils; Aerofin type.

Piping connections are external.

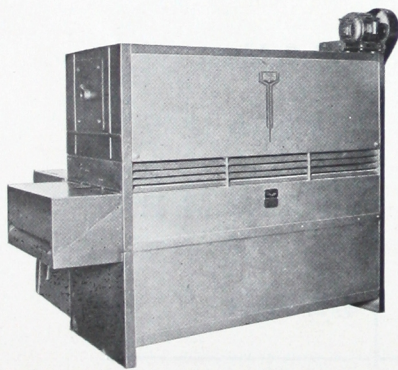
Humidifier, an accessory installed in the duct, may be either steam-heated evaporator or tap-pressure atomizer type, as preferred.

DIMENSIONS AND WEIGHTS—TYPES 39Q AND 39R

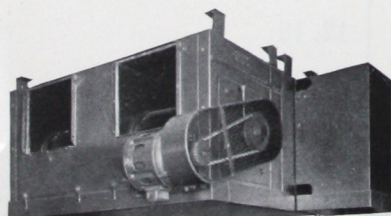
Unit No.	Air Filters		Base Dimensions, inches			Weight in Lb.
	No.	Size, in.	Length	Width	Height	
39Q2 } 39R2 }	6	16x20	46 $\frac{1}{2}$	21	63 $\frac{1}{2}$	1053
			46 $\frac{1}{2}$	35 $\frac{1}{2}$	23 $\frac{3}{4}$	1033
39Q6 } 39R6 }	9	20x20	59 $\frac{1}{2}$	28	63 $\frac{1}{2}$	1558
			59 $\frac{1}{2}$	42 $\frac{1}{2}$	30 $\frac{3}{4}$	1538
39Q7 } 39R7 }	12	20x20	85 $\frac{1}{4}$	28	63 $\frac{1}{2}$	2170
			85 $\frac{1}{4}$	42 $\frac{1}{2}$	30 $\frac{3}{4}$	2120
39Q9 } 39R9 }	15	16x25	85 $\frac{1}{4}$	36 $\frac{1}{2}$	70 $\frac{1}{2}$	2440
			85 $\frac{1}{4}$	42 $\frac{1}{2}$	39 $\frac{1}{4}$	2385



Front View Type 41B



Front View Type 39Q Showing Grilles for Recirculated Air Inlet



Outlet End of Type 39R Unit, Fans Visible Through Outlet Opening

Mining, Paints and Lacquer, Paper, Pharmaceuticals, Printing, Rubber, Shoes, Sound Recording, Textiles, Tobacco.

Cooling and Dehumidifying—See Pages 7, 8 and 9

Where Conditioned Air Is Required for Manufacturing Processes

SUMMER, WINTER OR YEAR-ROUND AIR CONDITIONING (Continued)

1 to 40 Tons—20,000 to 750,000 Btu

TYPES 43Q and 43T

Description—These units are in reality an assembled, small, central station plant and may be connected with ducts to distribute air to the conditioned space remote from heating or ventilating system.

Type 43Q—Consists of (1) Fan Section with motor-driven fan; (2) Spray and Cooling Coil Section, and (3) Drip Pan Section as standard. Function is to cool, dehumidify and circulate the air. May be equipped with Filter Section, and Heating Coil and By-Pass Section for year-round air conditioning.

Type 43T—Consists of (1) Fan Section with motor-driven fan; (2) Spray and Screen Section, and (3) Drip Pan Section as standard. Function is to humidify and circulate the air. May be equipped with Filter Section, and Heating Coil and By-Pass Section for cleaning and heating the air. Type 43T is not adaptable for dehumidifying.

DIMENSIONS AND WEIGHTS—TYPES 43Q AND 43T

Unit	Dimensions, inches			Weight in Lb.
	Width	Depth	Height	
43Q2 43T2	58¾	26	89	1550
43Q6 43T6	76½	33	104½	2300
43Q7 43T7	102¼	33	104½	2750
43Q9 43T9	102¼	41½	104½	3300

SURFACE TYPE DEHUMIDIFIER OR COMBINATION OF SURFACE AND SPRAY

6 to 60 Tons per Cell—2000 to 36,000 cfm

TYPE 29R

Description—Consists of an encased bank of cooling coils, eliminator, and drip pans made as one unit or cell. Bank of coils may consist of one to six, including nine different heights and two different widths. The coils may be sprayed and the characteristic performance of a spray type dehumidifier obtained, securing compactness for duty.

Dampers for recirculated air around the coil are standard. Units furnished in 18 sizes, capable of being stacked or grouped to yield economically a wide variety of capacity and dimensional combinations.

Functions—Type 29R Dehumidifier is designed for the following services: (1) Cooling and dehumidifying in summer. (2) Humidifying in winter. (3) Air washing. (4) Close control of conditions.

To complete equipment, fan, connection, and duct are used with dehumidifier.

Advantages—(a) Sectionalized elements. (b) Cooling coils for chilled water, brine or direct expansion. (c) Closed pumping system with chilled water. (d) Elimination of corrosion inherent with open spray system. (e) The condensate from one stack of coils is immediately drained. (f) Coils are non-ferrous Aerofin. (g) Centrifugal header used with direct expansion coils.

Performance Summary—Cooling Effect—Direct expansion; chilled water or brine, up to 60 tons (for largest size single coil.)

Spray Water Capacity—Recirculating sprays: approximately 0.8 gpm per sq. ft. of coil face area at 12-ft. head. Direct city water sprays approximately 0.11 gpm per sq. ft. of coil face area at 25-lb. pressure.

Rated Air Velocity—500 fpm.

Rated Air Resistance—4-row coil 0.62 in. water; 6-row coil 0.88 in. water.

AIR DISTRIBUTION OUTLETS

77 to 3125 cfm per Outlet

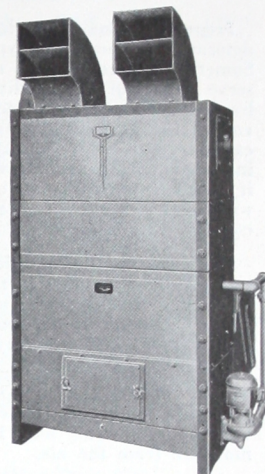
TYPE 35C1

Applicable for exposed or concealed ducts. Designed to utilize high velocity stream of primary air to induce a rapid secondary air movement. Available with ⅛, ¼ or ½-in. slots. Made with galvaneal or Allegheny metal.

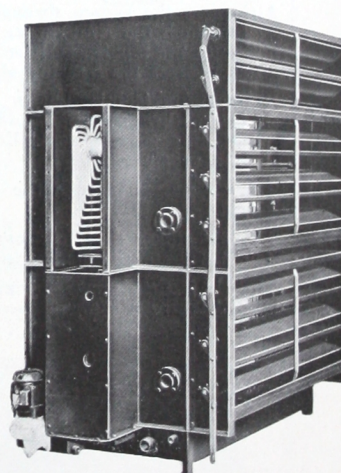
40 to 4900 cfm per Outlet

TYPE 35C6

Applicable for exposed or concealed duct, available in 32 sizes; Outlet consists of two sets of adjustable louvers for directional control of air flow and rear damper with hand, automatic or tool operation. Outlet core, consisting of front and rear louvers arrange to snap in and out—a new feature of great importance making duct accessible for cleaning. Metering plate available for raising static pressure to stabilize air distribution system.



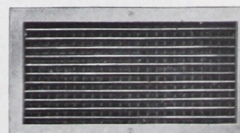
Type 43Q Floor Mounted



Type 29R
Single Unit—Floor Mounted
18 Sizes



Front View of 35C1 Outlet with
Snap Damper



Type 35C6 Adjustable Outlet

FOR Factories, Large Department Stores, Large Restaurants, Office Buildings, Printing Press Rooms, Theatres, etc.

CENTRAL STATION AIR CONDITIONING SYSTEMS

Proper Selection—Complete and accurate study is necessary to determine the economic type, size and location of the equipment. Sometimes there may be two or more central stations, each to serve a part of the conditioned space, with the air distributed by ducts. The choice of equipment depends on many factors involved for each particular space to be conditioned. In some cases, spray type dehumidifier may be used. In other cases, cooling and dehumidification of the air is accomplished by passing it through finned coils, containing refrigerant, brine or cold water. Or there may be a combination—spray and surface cooling.

Description—The conditioned air is distributed from the central station apparatus to the conditioned spaces through scientifically designed duct and outlets, with heating, humidifying, cooling, dehumidifying, cleaning, and air circulation obtained with central plant system. Very close dew-point control maintained.

Refrigerated spray water for the air conditioning apparatus is usually obtained by mechanical refrigeration, although under favorable conditions, if very cold and in sufficient quantity, deep well or city water may be used, to remove excess heat and moisture from the air.

Operation—The Schematic Drawing of the Carrier Central Station Air Conditioning System represents a year 'round installation. The equipment provides heating or cooling, humidifying or dehumidifying, cleaning, and circulation of air.

Air enters the system through the **OUTDOOR AIR INTAKE** and passes through the **NON-FREEZE HEATER**. Steam is automatically supplied to the non-freeze heater when outdoor air temperatures would endanger the freezing of the spray water.

RETURN AIR is mixed with outdoor air and the mixture is then drawn through the humidifier and dehumidifier. Volume dampers, automatically controlled, regulate percentages of return and outdoor air used.

The air passes through the **FILTER** where dust and dirt are removed.

The air enters the **HUMIDIFIER-DEHUMIDIFIER** through baffles which distribute the air across the section.

The air is then drawn through the **SPRAYS** where it becomes saturated with moisture at about the leaving water temperature.

The saturated temperature of the air is its **Dew Point Temperature**. Controlling temperature of spray water to control saturated temperature of air is known as **Dew Point Control**.

When required Dew Point Temperature is higher than the temperature of supply water, the spray water is heated by addition of steam, the steam entering the circulated water at the **WATER HEATER**.

When the required Dew Point Temperature is lower than the temperature of supply water, the spray water is cooled by introducing **CHILLED WATER**, the chilled water entering the circulated water circuit at the **3 WAY VALVE**.

A thermostat, located in the air stream beyond the sprays, controls the Dew Point of the air by establishing the required spray water temperature. This thermostat controls the operation of diaphragm valves to add steam or chilled water as required to keep the spray water temperature constant.

When water is evaporated into the air, make-up water is supplied through the **FRESH WATER SUPPLY**.

When moisture is condensed from the air, the excess water spills out the **OVERFLOW**.

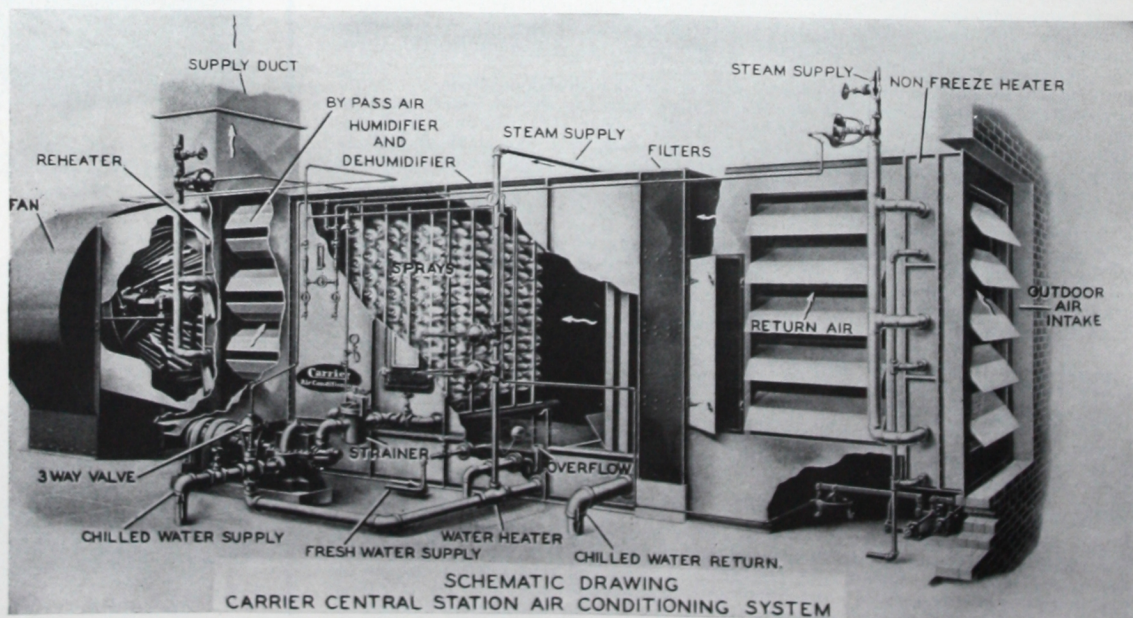
When the air, saturated with moisture at the required Dew Point Temperature, leaves the sprays, it passes through eliminator plates where entrained moisture is removed. This prevents drops of water being carried in the air stream.

Recirculated air, not passed through the **HUMIDIFIER-DEHUMIDIFIER**, enters the apparatus through the **BY-PASS AIR** dampers.

The purpose of the by-pass is threefold—to permit operating economy during partial load operation; to increase the total air supplied to the conditioned space; to insure proper air distribution without increasing the size of humidifying or dehumidifying equipment; and, to allow circulation of a constant quantity of air under all load conditions, thus avoiding drafts, cold spots or overheated areas.

The mixture of **BY-PASS AIR** and air from the **HUMIDIFIER-DEHUMIDIFIER** pass through the **REHEATER**. Steam supplied to the **REHEATER** is automatically controlled by a room thermostat.

The conditioned air is drawn into the **FAN** which discharges it into the **SUPPLY DUCT** for distribution to spaces which are to be air-conditioned.



FOR Chilling Water or Brine; Direct Cooling of Beverages or Other Liquids; Condensation of Gases; Comfort and Low Temperature Air Conditioning; Manufacturing Processes.

REFRIGERATION APPARATUS—CENTRIFUGAL MACHINE

100 to 1100 Tons Refrigerating Capacity

TYPES 17M and 17P

Description—The refrigerant is Carrene No. 2—non-toxic, non-explosive, non-inflammable, highly efficient, listed in Group I, by American Standard Safety Code for Mechanical Refrigeration. Machines are compact, self-contained units, comprised of evaporator, centrifugal multi-stage compressor, and condenser on a single foundation.

Individual Units are available in capacities from 100 tons to 1100 tons and for temperatures from plus 50° F. to as low as 130° F. below zero.

Twelve compressors, nine coolers and nine condensers are available in standardized combinations and for nominal temperatures as low as plus 15° F.

The same number of compressors, coolers and condensers are available for low temperature requirements.

The compressor rotor is statically and dynamically balanced. Impellers are lead-coated. The complete oiling system with pump is integral with compressor.

Advantages—(1) *Easily Installed, Compact, Relatively Light Weight*—Machines are completely factory-assembled with minimum “knockdown” for shipment. Erection consists only of bolting parts together. Requires less space than other systems of equivalent refrigerating capacity.

(2) *Any Standard Drive Is Applicable*—Synchronous motor, induction motor, slip-ring motor, or steam turbine may be used for driving compressor.

(3) *Improves Heat Balance*—The centrifugal machine may be fitted into plant heat balance when driven by a suitable steam turbine. It may be driven by high pressure steam and supply low pressure steam for heating or other industrial purposes, by low pressure exhaust steam, operating condensing, or a combination of the two. The steam turbine exhausts clean steam, free from contaminating oil.

(4) *High, Sustained Efficiency*—Two shaft bearings and a thrust bearing are only rubbing parts. Friction of these and power for oil pump require less than 3% of driving power.

No valves or piston rings to wear. Oil and liquid refrigerant are not intermingled, eliminating fouling of heat transfer surfaces.

(5) *Easily Maintained*—Wearing parts are few and are readily accessible without progressive dismantling of machine.

(6) *Superior Operating Characteristics*—Capacity can be varied economically over a wide range by comparatively slight changes in speed. The temperature of the brine leaving the cooler can be controlled automatically, within close limits, with either Steam or Electric Drive, by means of speed control.

(7) *Less Supervision Required*—Inherent constant temperature characteristic requires few adjustments and hence less supervision. Because of inherent constant temperature stability, constant speed may be employed with comparatively minor adjustments for temperature control.

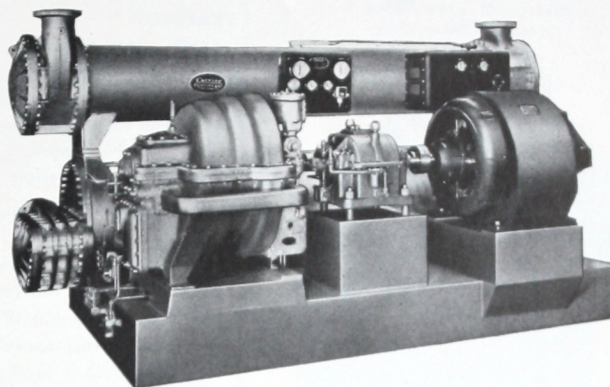
(8) *Operates with Negligible Vibration and No Shock*—Massive foundations are unnecessary, moving parts are light in weight and in perfect dynamic balance.

(9) *Machine Is Safe*—Safe low pressure refrigerant. Moving parts are enclosed. Cooler operates under vacuum, condenser slightly above atmospheric pressure.

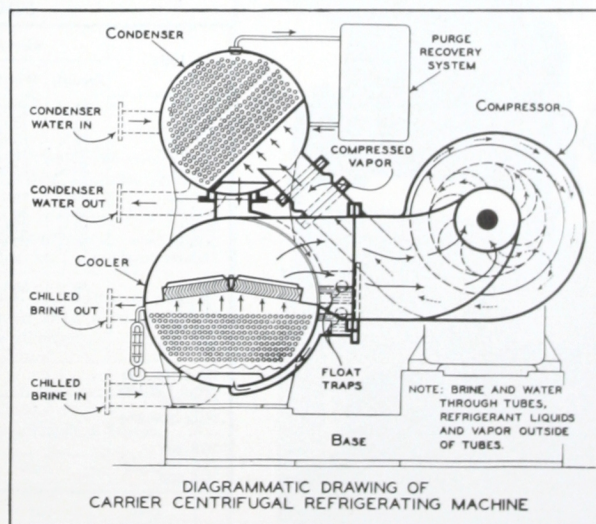
Operating Cycle—The Carrier Centrifugal Refrigerating Machine consists of three major parts: (1) Compressor, (2) Cooler, and (3) Condenser. In addition to these parts, all equipment is included to make the machine a complete self-contained unit.

The operating cycle will be described in the following sequence: (1) Evaporation, (2) Compression, and (3) Condensing, and (4) Return of condensate to evaporator.

(1) *Evaporation*—The liquid to be cooled, designated as “CHILLED BRINE IN” on the drawing enters the COOLER through the connection marked “CHILLED BRINE IN.” It then passes through the inside of the tubes which make up the tube bundle. Here the heat in the brine is removed by the refrigerant. The refrigerant, entering at the bottom of the COOLER, is in a liquid state but is free to evaporate due to the low pressure maintained in the cooler. The change in state of the refrigerant from liquid



Centrifugal Refrigerating Machine Type 17M

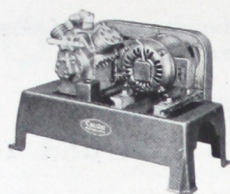
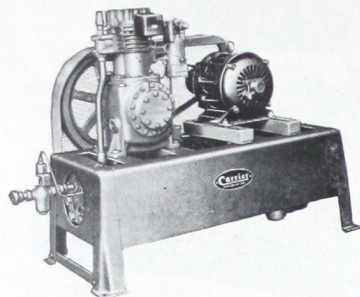
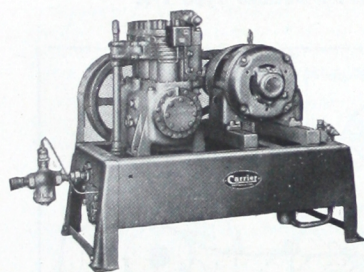
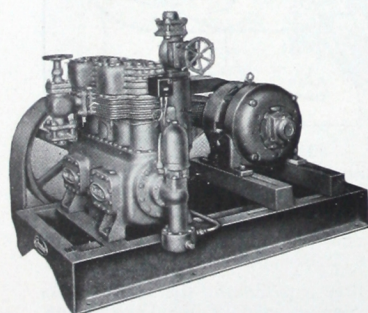
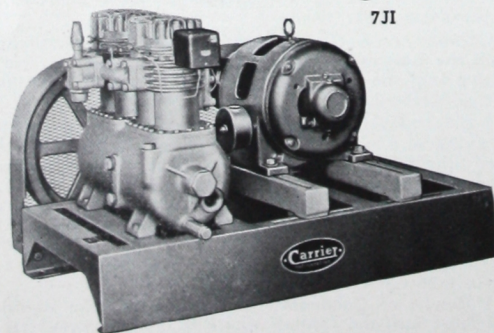


to vapor takes place in the space surrounding the tube bundle and the vapor passes to the suction inlet of the COMPRESSOR. The heat necessary for the evaporation of the refrigerant is absorbed from the brine circulated within the tubes. The brine, after chilling, leaves the COOLER through the connection marked CHILLED BRINE OUT.

(2) *Compression*—The refrigerant vapor generated in the bottom of the COOLER passes up through the eliminator plates and is drawn into the centrifugal COMPRESSOR where the refrigerant gas is compressed and delivered to the CONDENSER.

(3) *Condensing*—The compressed refrigerant gas enters the CONDENSER and passes around tubes which make up the condenser tube bundle. Water is circulated through the inside of the tubes, entering at the connection marked CONDENSER WATER IN and leaving at the connection marked CONDENSER WATER OUT. The condenser water may be from a cooling tower, river or lake, deep well or city supply. Heat is removed from the compressed refrigerant gas by the condensing water so that a change in state occurs, and the refrigerant becomes a liquid.

(4) *Return of Condensate to Evaporator*—The liquid refrigerant flows into the COOLER where it is again evaporated, completing the operating cycle of mechanical refrigeration.


7K4

7H5

7H6

7G8

7F6

FOR—Use with Comfort and Industrial air conditioning systems, refrigeration, and process cooling. Carrier equipment offers a wide range of selection. Reciprocating condensing units for "Freon 12" are available with capacity range from 1/4 hp. to 60 hp. Air-Cooled water-cooled, and evaporative condensers, designed for the various refrigerating machines, offer a wide range of selections to meet operating advantages.

Refrigerating Machines—"Freon 12"

FEATURES

- | | |
|---|---|
| (1) Precision-built | (7) Effective lubrication. |
| (2) Made of quality materials. | (8) Reciprocating parts well balanced. |
| (3) Quality built into the manufacturing. | (9) Belts oversized. |
| (4) Large valves and ports. | (10) Superheating minimized. |
| (5) Valves cushioned. | (11) Valves hold tight at any pressure. |
| (6) Minimum vibration. | (12) Low starting current—at full capacity. |

Wide range of sizes and of standard speeds provides selection advantages without forcing unit to fit duty desired.

Each unit receives three tests to assure tightness prior to shipment: (1) High internal pressure test, (2) Extremely high vacuum test, (3) Sensitive gas-torch test.

With the exception of the air-cooled units, all may employ city water, an evaporative condenser, cooling tower or well water, for condensing purposes.

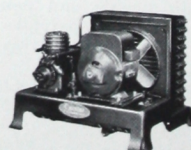
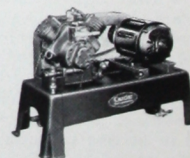
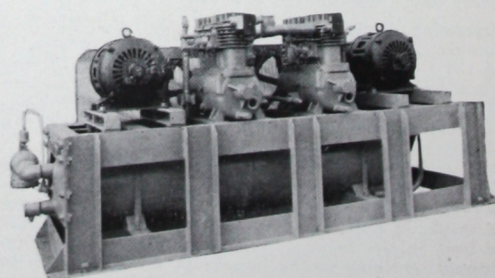
On water-cooled machines, condenser is self-contained; located under base for use with water for condensing. The smaller size machines are admirably suited to, and widely used for, commercial refrigeration, such as food refrigeration.

TYPE 7

DIMENSIONS AND WEIGHTS—"FREON 12" UNITS

Unit	Air Condensing				Water Condensing				Evaporative Condensing			
	Length	Width	Height	Weight	Length	Width	Height	Weight	Length	Width	Height	Weight
7J1-14	20 1/2	15 3/4	15	105								
7J1-S-14	20 1/2	15 3/4	11									
7J1-13	20 1/4	15 3/4	15	110								
7J1-S-13	20 1/4	15 3/4	11									
7L1-12	30 1/8	21 5/8	18 7/8	215	30 1/8	14 1/4	18 1/8	195				
7L1-34	30 1/8	22 1/16	19 3/4	240	30 1/8	15 3/8	18 1/8					
7G2-10	33 1/4	26	24 15/16	341	34 1/2	19 7/16	21 7/16	274	34 1/2	19 7/16	21 7/16	
7G2-15	33 1/4	27 1/2	24 15/16		34 1/2	20 7/16	21 7/16	310	34 1/2	20 7/16	21 7/16	
7G2-20	36 1/2	29 3/8	25 3/16									
7K3-20					20 1/4	37 3/4	26		20 1/4	37 3/4	26	
7K3-30	29 7/8	36 1/2	26 13/32		22	40 1/2	29 7/8		22	40 1/2	29 7/8	
7K4-50					23	44 1/2	31		23	44 1/2	31	
7H5-75					59 3/4	30	44 1/16	1265	50	26 1/4	33 1/2	1120
7F6-100					61 1/4	37 3/8	41 3/4	1840	50	35 1/2	30 3/4	1435
7H6-150					63 3/4	37 3/8	44 1/16	1895	50	35 1/2	33 1/2	1535
7F66-100-100					105	38 1/4	46 11/16	3500	95 3/4	33 1/16	32 3/4	2800
7H66-150-150					105	38 1/4	55	3500	95 3/4	32 7/8	41	3100
7G6-200					63 3/4	37 3/8	44 1/2	1895	50	35 1/2	33 1/2	1535
7G66-200-200					108	45 1/16	60 3/8	3700	95 3/4	45 1/16	46 3/8	3200
7G8-300					102 1/8	58 1/2	72 5/8	5000	80 1/2	58 1/2	58 5/8	3600
7G8-400					102 1/8	58 1/2	72 5/8	5300	80 1/2	58 1/2	58 5/8	3900
7G8-500					102 1/8	58 1/2	72 5/8	5400	80 1/2	58 1/2	58 5/8	4000


7J1

7L1

7G2

7K3

7F66

EVAPORATIVE CONDENSERS

Used with Refrigerating Equipment in Place of Air-Cooled or Water Cooled Condensers and Cooling Towers

2 to 15 Tons Nominal Ratings—"Freon 12"	TYPE 9S
10 to 75 Tons Nominal Ratings—"Freon 12"	TYPE 9Q
20 to 500 Tons Nominal Ratings—"Freon 12"	TYPE 9R

Application—Used with refrigerating equipment in place of air-cooled or water-cooled condensers and cooling towers.

Principle of Operation—Condensing coils are sprayed with water and air passed over wetted surfaces. Heat to vaporize the water is removed from the refrigerant. Condensing temperature approaches wet bulb temperature of air.

Where to Consider Use of Evaporative Condensers—

- (1) High Water Cost.
- (2) High Power Cost, i.e., \$.03 to \$.07 per kw. hr.
- (3) High Water Temperature.
- (4) Inadequate Water Supply or Disposal Systems.
- (5) City Ordinances Restricting Use of Water or Disposal Systems.

Advantages—A few advantages of the Evaporative Condenser over the cooling tower: Low Compressor Power or, for the same power, greater compressor capacity because—

(a) The Evaporative Condenser provides a lower condensing temperature for the same outdoor wet bulb.

(b) Carrier Evaporative Condenser incorporates a liquid sub-cooling coil which adds materially to the efficiency of the system.

Low Installation Costs—

- (a) Reduction of compressor size.
- (b) Less cost for piping and pumps.
- (c) Greater freedom in choice of location.
- (d) Less expensive foundations and supports due to lower weight.
- (e) Smaller volume of water circulated.

Description—Type 9S Suspended Unit consisting of condensing coils, receiver, fan and fan motor, casing, and an air-induced coil spray. Water is recirculated, effecting savings. Scale prevention treatment of water is used. Available in five sizes.

Type 9Q Floor Mounted Unit consisting of condensing coil section, receiver, fan and motor section, spray nozzles, pump and pump motor. Unit is weather-proofed, may be installed out-of-doors. Water treatment standard on all units. Available in four sizes with nominal ratings of 10 to 75 tons.

Type 9R consists of one or more cells, each cell including finned condensing coils, and spray nozzles. One receiver, water pump and pump motor are used with a multi-cell unit. Casing is weather-proofed for outdoor installation. Available in 18 sizes.

DIMENSIONS AND WEIGHTS

Unit	No. of Sizes	Dimensions in Inches						Weight in Pounds	
		Height		Width		Depth		Min.	Max.
		Min.	Max.	Min.	Max.	Min.	Max.		
9S	5	20	27	25	51	38	40	200	1000
9Q	4	63	77	47	85	21	37	1450	3900
9R*	18	40	123	99 1/2	125 1/2	32 3/4	32 3/4	840	3380

*Number of sizes, dimensions, and weights are for single cells only.

SHELL AND TUBE CONDENSERS

10 to 100 Tons Nominal Ratings

TYPE 9K

Horizontal shell and tube condenser particularly adaptable for use with Type F, G, H, J, K, L compressor units.

Description—Condenser water flows through finned tubes, the refrigerant surrounding the tubes within shell. Tubing is arranged to give four pass flow of condenser water. Suitable for use with "Freon 12."

Sizes—Condenser available in four sizes.

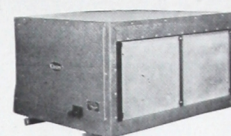
SHELL AND TUBE COOLERS

10 to 135 Tons Nominal Ratings

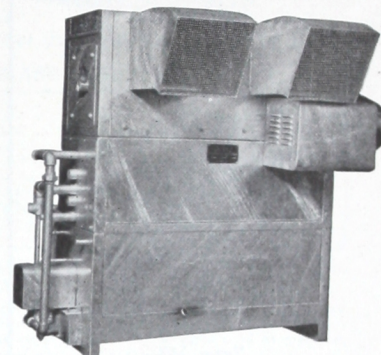
TYPE 10K

Description—Coolers utilize shell and tube construction. Water flows through tubes, refrigerant surrounding the tubes. Efficiency and effectiveness of tube surface maintained with use of flooded system of operation. Sight glass located for observing operation.

Advantages—Coolers available in five sizes. Refrigerant quantity relatively small. All units very compact, requiring small floor space. Oil bleeder return line maintains lubrication of compressor. Accurate controls adjustable to load.



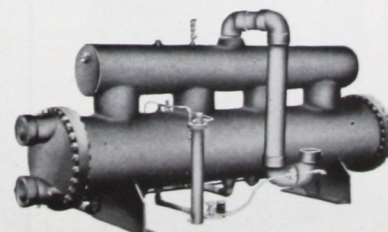
Evaporative Condenser
Suspension-Mounted
Type 9S



Evaporative Condenser
Floor-Mounted
Type 9Q



Evaporative Condenser
Floor-Mounted
Type 9R



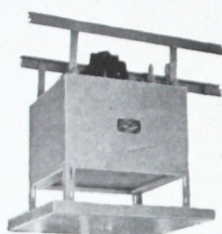
Shell and Tube Cooler
Type 10K

FOR Beverage Plants, Chemicals, Dairies, Food Storage, Furs, Locker Storage, Meats, etc.

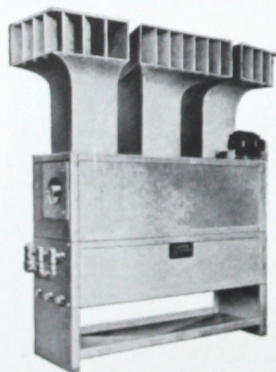
(For Refrigeration Equipment, See Pages 7, 8 and 9)



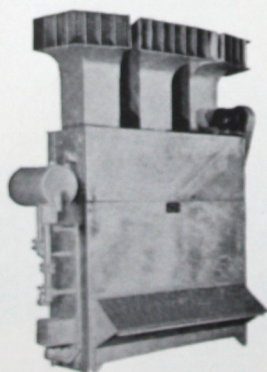
Type 15M



Type 15K



Type 15Q



Type 15T

CEILING SUSPENSION COLD DIFFUSERS

0.1 to 1.8 Tons—310 to 1900 cfm

"Freon 12" Coils

TYPE 15M

Operation—Disc type fan is operated by direct-connected motor. Cooling coil is of copper tubing with aluminum fins. Discharge grille consists of two sets of directional flow vanes, one adjustable from the room, the other set at time of installation to suit space. Unit is available with discharge hood with outlet grille located at hood discharge. The propeller fan draws in the air and discharges it over the coil and through the discharge grille. An inter-changer effect obtained with refrigerant connections to coil increases overall cooling efficiency of unit. Removable drip pan. An extra drip pan available is also removable.

Installation—Easily installed. Electrical, refrigerating, and drain connections required. Casing is made of 20-gauge galvaneal finished with easily cleaned, baked enamel. Drip pans of 16-gauge galvaneal.

DIMENSIONS AND WEIGHTS—TYPE 15M

Units	Dimensions in Inches			Weight in Pounds
	Height	Width	Depth	
15M2	14 ³ / ₁₆	16 ³ / ₈	28 ¹ / ₁₆	80
15M3	18 ¹ / ₁₆	17 ¹ / ₁₆	28 ¹ / ₁₆	115
15M4	18 ¹ / ₁₆	22 ³ / ₄	32 ¹ / ₁₆	165
15M5	25 ¹ / ₁₆	22 ³ / ₄	33 ¹ / ₁₆	245
15M6	25 ¹ / ₁₆	28 ¹ / ₄	34 ³ / ₄	350
15M7	30 ³ / ₄	31 ¹¹ / ₁₆	36	485

0.5 to 3.5 Tons—700 to 3000 cfm

"Freon 12," Ammonia or Brine Coils

TYPE 15K

Operation—Disc type fan is operated by a 1/12 to 1/3 hp. motor. Freon and Brine cooling coils are of copper tubing with aluminum fins. Coils have from three to seven circuits in parallel, depending on refrigerant. Ammonia coil is made with aluminum tubing and fins.

Installation—Easily installed. Weight, 260 lbs. to 455 lbs. Electrical, refrigeration, and drain connections required.

Casing—Galvaneal sheet steel air-dried, light green, lacquer finish. Made in two sizes. Overall dimensions: length, 26³/₁₆ in. and 34³/₁₆ in.; depth, 26¹/₁₆ in. and 30³/₁₆ in.; height, 30³/₁₆ in. and 35³/₁₆ in.

FLOOR MOUNTED COLD DIFFUSERS

1 to 20 Tons Prime Coils, 1 to 25 Tons Finned—2200 to 12,500 cfm

"Freon 12," Ammonia or Brine Coil

TYPE 15Q

Operation—One, two or three centrifugal type fans operated by 1/4 to 5 hp. motor. Cooling coil is either of copper tubing with aluminum fins, or of galvanized steel throughout. Air is drawn in through base by multi-blade fans, discharged through outlet or ducts.

Installation—Units are made in sections, may be easily converted from top to side discharge. Multiple outlets provide directional air diffusion. Correct selection of air quantity and refrigerant temperatures maintaining constant conditions. Weight, 1050 lbs. to 3800 lbs. Electrical, refrigeration, and drain connections required.

Casing—Pressed steel welded construction hot-dipped galvanized finish. Made in three sizes. Overall dimensions: length, 46¹/₂ in. to 85¹/₄ in.; depth, 21 in. to 28 in.; height, 105¹/₂ in. to 112 in.

0.6 to 26 Tons—1350 to 10,000 cfm

(Brine Spray), "Freon 12," Ammonia or Brine Coils

TYPE 15T

Application—Low operating temperatures without loss of time for defrosting. The salt brine spray prevents frosting and, in addition, has germicidal action. For storage rooms to be held near or below freezing (but above minus 10° F.) and where latent heat loads are heavy. Inhibits mold growth and disagreeable odors.

Operation—In brewery fermenting rooms, the 15T units may be used with sweet water spray instead of brine. One, two or three centrifugal type fans are operated by 1/4 to 5 hp. motor. Cooling coil is galvanized steel finned tubing.

Installation—Units are made in sections. Low velocity multiple outlets afford uniform air distribution. Fan section may be converted from top to side discharge in field (except 15T9). Weight, 1250 to 4700 lbs. Electrical, refrigeration, and drain connections required.

Casing—Pressed steel, welded construction hot-dipped galvanized finish. Made in four sizes. Overall dimensions: length, 46¹/₂ in. to 85¹/₄ in.; depth, 21 in. to 36¹/₂ in.; height, 78¹/₂ in. to 92¹/₂ in.

DEHYDRATION

Silica Gel Units

Application—These units achieve direct control of humidity, independently of temperature. They meet a wide range of applications for maintaining low humidities in process work; controlling humidities in industrial plants; providing proper humidities in comfort air conditioning.

Description—Dehumidification of air is accomplished by the dehydrating quality of a solid adsorbent, Silica Gel. This substance will adsorb up to 40 per cent of its weight in moisture. The moisture is then readily expelled by the application of heat, so that the Silica Gel is again capable of adsorbing a like quantity of moisture. Silica Gel can be used indefinitely without deterioration or loss in volume. The efficiency of moisture removal increases as the inlet air becomes drier. There is virtually no limit to the dryness of air which may be secured; and thus by selecting the proper size of unit, moisture levels from practically anhydrous air to any higher level may be obtained.

Operation—The equipment used to dehydrate air by this principle is entirely automatic. The smaller units consist of a rotating screen cylinder containing Silica Gel. As the cylinder rotates, it passes through the various air streams which make up the complete cycle. The larger units consist of a series of stationary Silica Gel beds, together with a damper mechanism which automatically changes the various air streams from one section of the Silica Gel to another so that a continuous air flow cycle is produced.

After the Silica Gel has adsorbed moisture from the air passing through the beds, it is automatically "re-activated" or dried out by the application of gas heat. In cases where gas is not available, Silica Gel Dehydrators for steam heat activation are available.



Silica Gel Unit Type 53C

CAPACITIES AND DIMENSIONS

Size	Air Capacity cfm	Fan Motor hp.	Power Input KW	Gas Burner Consumption Btu/hp	Shipping Wt., Lb.
53C5	460 to 590	Two 1/4 hp	0.44	65000	670
53C8	770 to 880	One 3/4 hp	0.80	95000*	1050
53C14	1270 to 1370	One 1 hp	1.09	145000*	1700
53C29	2800 to 3150	One 3 hp	2.80	325000*	2900

*These units are equipped with throttling gas control. Actual gas consumption, therefore, varies with the moisture load.

Moisture Removal—The moisture removal capacity ranges from 23 lb. per hour for the 500 cfm unit to 126 lb. per hour for the 2900 cfm unit based on an entering air condition of 9 grains per cubic foot. With the units used in multiple, a wide range of dehydrating capacities may be attained.

HEAT INTERCHANGERS

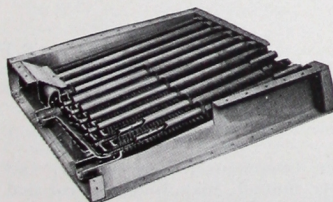
Application—Air-to-water heat interchangers, when used in conjunction with refrigeration are popularly termed "cooling coils." Made in two types, they are finding increasing use for air cooling and dehumidifying in preference to the water-tank type dehumidifier or to direct-expansion coils.

Advantages—Permit lower pumping costs, the decentralization of fan and duct systems while avoiding extensive refrigerant piping systems. One refrigeration system can serve a multiplicity of fan systems, or areas on the same large systems, by means of a closed, chilled water recirculating system. Ideal where fan systems are located on different levels, to be served by one refrigeration system. The coils are of Aerofin design and manufacture and possess structural and performance characteristics of unquestionable merit and superiority.

Aerofin Continuous Tube (C.T.) Coils—Designed for heating or cooling of air with water as the heating or cooling medium. Used to effect saving of space and piping and for more advantageous water velocities.

Narrow Width Water Coils—Effect a space advantage in the direction of air flow, since the depth of each coil is only 10 in.

NON-FREEZE COIL



Type 28M

Application—Used to overcome the danger of freezing the condensate under adverse conditions. Eliminates need of low temperature rise coil ahead of heater for protection against freezing. Provides constant temperatures over face of coil.

Description—Supply and return headed in single casting.

Coil consists of individual, finned tubes each with inner perforated tube or core. Steam passes through supply header into inner core, then through perforations into outer tube. Steam condenses in outer tube and flows back parallel and in contact with inner tube. Insures against freezing and stratification.

Physical Data—Available in section, each one row deep. Choice of fin spacing 4 or 7 fins per inch. Tube lengths 2 ft. 0 in. to 10 ft. 0 in. Casings of galvanized iron, flanged for duct connections.

SMOKE HOUSES

Carrier Smoke Houses are complete, carefully designed and tested units developed especially for the drying or sealing, smoking, curing, and cooking of meats. Available in 9 sizes.

Temperature, relativity, humidity, air motion, smoke density of air (which is cleaned) are controlled to preserve quality of product and maintain smoking and cooking schedules.

COMMERCIAL REFRIGERATION EQUIPMENT

STORAGE REFRIGERATORS—In 25 and 35 cu. ft. self-contained models. Larger remote sizes as well as walk-in coolers are available on special order.

DISPLAY CASES—Used for butcher shops, grocery stores, delicatessens and bakeries in 4, 6, 8, 10 and 12-ft. lengths.

BEVERAGE COOLERS—Both wet storage and dry storage types.

BAKER'S REFRIGERATORS—Dough retarding, in 56 and 83 cu. ft. capacity.

FROSTED FOOD CABINETS—Standard storage type as well as combination storage and display.

BEER DISPENSING EQUIPMENT—Includes instantaneous coolers, direct-from-the-barrel models, and straight pre-cooling.

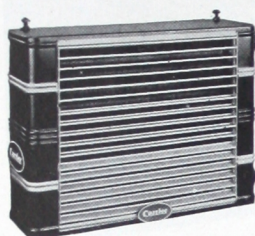
CARRIER WATER COOLER—The Carrier self-contained, pressure water cooler delivers ten gallons of cool water per hour. Its small size and handsomely styled cabinet will fit into most any scheme of decoration. It has a provision for installation of a carafe filler, as well as a connection for a line to remote fountains.

CARRIER CORPORATION is also well equipped to handle the large industrial water cooling problems.

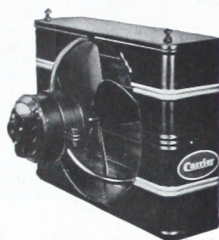


Water Cooler Type 13J

FOR Heating Small and Large Industrial Buildings, Garages, Airplane Hangars, Armories, Factories, Commercial Buildings.



Front



Rear

Steam or Hot Water Unit Heater—
Type 46E



Gas Unit Heater—Type 46J
Suspension Type



Gas Duct Heater—Type 46J

CEILING SUSPENSION (For Steam or Hot Water)

Available in 27 Sizes—24,000 to 475,000 Btu

TYPE 46E

Application—Designed to heat for processing or producing as nearly as possible conditions of maximum comfort and at greatest fuel economy. They are unsurpassed for the following classes of applications: (1) Small areas with relatively low ceilings where comparatively few units are required. (2) Multi-story buildings in which heat losses are concentrated around the outside walls. (3) Where it is only necessary to keep sprinkler piping from freezing. (4) To eliminate condensate from process work and to prevent drippage from ceilings. (5) Rooms which are subdivided by partitions.

Features—Styled for appearance and utility. No unnecessary restriction to air flow. Tested to 1000 lbs. hydrostatic pressure and guaranteed for 200 lbs. working pressure. Low noise level. Spring-suspended motor bracket absorbs vibration.

Motor located on cool side of heater. Thermostatic regulation.

Installation—Suspended from ceiling or trusses. Vertical or horizontal air flow. With no air flow obstructions, units will deliver up to 50 to 60 ft. from the unit, depending on fan speed. Fan propeller type, 12, 16, 19 and 22 in. diameter. Motor 1/50 to two 1/4 hp.

RATINGS AT 2 LBS. GA. STEAM PRESSURE (Hot Water Ratings Furnished on Request)

Size Unit	Fan rpm	Cfm Volume 70° Ent. Air	Discharge Velocity 60° Ent. Air	Btu per Hr. 60° Ent. Air	Final Temp. of	Con- densate Lbs./hr.	Equiv. Sq. Ft. Dir. Rad.	Bhp with 60° Ent. Air	Motor hp.	Weight in Lb.
46E-122	1550	625	762	24,000	95.3	24.7	100	.037	1/50	80
46E-124	1725	970	1170	32,000	90.5	33.3	134	.06	1/12	80
46E-126	1725	706	894	42,600	115.8	44.0	177	.06	1/12	100
46E-128	1725	912	1140	47,800	108.5	50.0	199	.06	1/12	103
46E-161	1160	1180	685	58,500	105.9	60.3	243.7	.058	1/12	160
46E-162	1160	1330	770	65,000	105.2	67.0	270.8	.058	1/12	160
46E-163	1160	1570	907	74,000	103.6	76.2	308.3	.135	1/8	160
46E-164	1160	1150	690	81,000	125.2	83.5	337.5	.062	1/12	165
46E-165	1160	1250	750	87,000	124.4	89.6	362.5	.06	1/12	165
46E-166	1160	1430	855	98,000	123.4	101.0	408.3	.136	1/8	165
46E-167	1160	1330	808	106,000	133.7	109.2	441.6	.138	1/8	170
46E-168	1160	1404	856	114,000	134.9	117.5	475.0	.138	1/8	170
46E-169	1160	1550	945	124,000	134.0	127.8	516.6	.188	1/6	170
46E-192	1160	2240	930	138,000	116.7	142.2	575.0	.275	1/4	200
46E-194	1160	2410	1000	148,000	116.5	152.5	616.6	.275	1/4	200
46E-196	1160	2160	916	160,000	128.2	164.9	666.6	.275	1/4	200
46E-222	870	2970	838	196,000	120.8	202.0	816.6	.270	1/4	230
46E-224	870	2565	743	208,000	134.7	214.4	866.6	.280	1/4	230
46E-226	870	2720	787	221,000	134.9	227.8	920.8	.28	1/4	245
46E-228	870	3030	878	246,000	134.8	253.6	1025.0	.37	1/3	265
46E-388	1160	4100	757	350,100	138.6	360.8	1458.3	.54	Two 1/4	400
46E-448	870	5250	731	475,000	143.3	490.0	1980.0	.56	Two 1/4	475
46E-31	1750	1541	911	96,000	117.4	100	400	.145	1/6	165*
46E-32	1750	1795	1060	110,000	116.6	114	458	.145	1/6	170*
46E-42	1750	1685	1020	130,000	131.2	135	541	.163	1/6	170*
46E-61	1160	2830	800	190,000	122.0	197	792	.360	1/3	245*
46E-72	1160	180	918	255,500	134.1	265	1065	.375	1/3	265*

To find cfm at 70° with an Entering Air Temperature other than 60° F., multiply cfm given in Table by 520 and divide by (Entering Air Temperature + 460).

To find Fan hp. with an Entering Air Temperature other than 60° F., multiply value given in Table by 520 and divide by (Entering Air Temperature + 460).

Ratings apply only for Recirculation and Free Delivery. Steam Pressure specified is that to be maintained on Heating Coil. Suitable Line Drop must be added to determine pressure to be held at boiler. Tested and rated in accordance with rules adopted by Industrial Unit Heater Association. When air is to enter unit at a temperature below freezing, steam pressure at unit should not be less than 5 lbs.

CEILING SUSPENSION, FLOOR-MOUNTED, AND DUCT HEATER (Gas-Fired)

Unit Heaters—44,000 to 160,000 Btu

Duct Heaters—44,000 to 240,000 Btu

TYPE 46J

Application—Unit Heater is entirely self-contained. Ideal for use wherever gas fuel is economical. Substantially lower in cost of installation than steam units.

Features—Disc fan type, using gas, for suspension, floor mounting and duct installation. Exceptionally quiet operation.

Standard unit includes fan, motor, combustion chamber, interchanger, flue chamber and draft diverter, burners, electric gas valve, automatic safety shut-off, high limit control and pressure-regulating valve. The gas valve is electric solenoid type. An automatic safety shut-off valve, which closes the gas valve if the pilot light is extinguished, is provided. Equipped with a regulating valve and a High Limit Control which automatically shuts off the gas when the temperature rises above a fixed limit.

Optional Equipment—Additional equipment is available which will provide automatic thermostatic control.

Capacities—Suspended Type—Eight sizes (five capacities). Range, 800 to 2700 cfm.

Floor Mounted Type—Three sizes (two capacities). Range, 800 to 1350 cfm.

Duct Heaters—Six sizes. Range, 675 to 2860 cfm.

Approved types are also available for use in garages and airplane hangars.

Gas-Fired Unit Heaters have been approved by AGA and Underwriters' laboratories.

HEAT DIFFUSERS, VENTILATING FANS

Carrier

HEAT DIFFUSING UNITS

Floor or Suspension Mounting—Available in 20 Sizes
130,000 to 900,000 Btu

TYPES 46P, 46Q, 46R

Application—In heat diffuser work, application and Btu capacity are important considerations in equipment selection. The units chosen must have sufficient capacity under the design conditions to maintain specified room temperature.

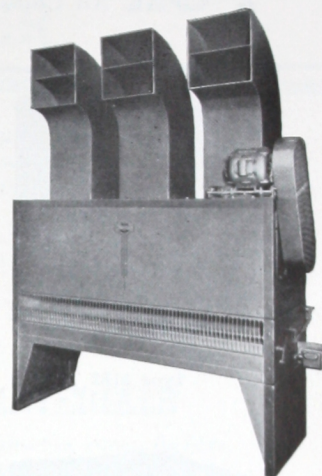
There are, however, other important elements, such as location, air distribution, outlets, fan speed, air change, noise, and controls, all of which require consideration, and influence the final selection of equipment.

Features—Low horsepower requirements. Unusual quietness. Flexibility of arrangement and location. Selective air distribution. High outlet velocity. Removable fan and shaft assembly. Provision made for free expansion and contraction of coil. Tested at 1000 lbs. hydrostatic and 200 lbs. working pressure. No screwed joints or compression fittings. Wide choice of units. Ease of erection and handling. Guaranteed capacity ratings.

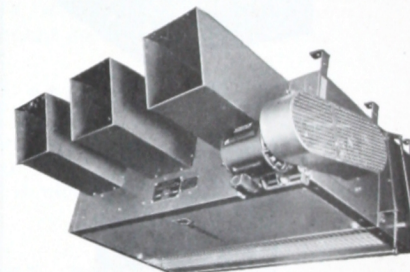
Operation—These units take return air through heater coils, or through front of unit by-passing heater coils. Fan forces the heated air out through distribution outlets horizontally for maximum distribution. Type 46Q vertical, floor-mounted; Type 46P also vertical but suspension-mounted; Type 46R horizontal suspension-mounted. Multi-blade, centrifugal fans, 11 $\frac{3}{4}$ to 16 in. diameter, two or three fans per unit. Motor, $\frac{1}{4}$ to 3 hp., 670 to 1100 rpm fan speed.

CAPACITIES AND DIMENSIONS (BELT DRIVE UNITS)—TYPES 46P, Q, R

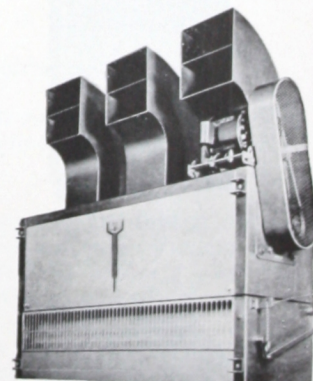
Steam Basic Ratings—Belt Driven Units				Dimensions, inches			Weight in Lb.	
Unit No.	Fan rpm	Cfm	Btu 60° Air 2° Steam	Type 46Q Units			Q	P and R
				Length	Height	Depth		
46P20, Q20, R20	1100	3,400	130,000	46 $\frac{1}{2}$	102	21	750	710
46P22, Q22, R22	1100	3,000	170,000	46 $\frac{1}{2}$	102	21	750	710
46P24, Q24, R24	1100	3,200	190,000	46 $\frac{1}{2}$	102	21	750	710
46P26, Q26, R26	1100	3,300	215,000	46 $\frac{1}{2}$	102	21	750	710
46P30, Q30, R30	1100	5,100	197,000	66 $\frac{1}{2}$	102	21	1000	960
46P32, Q32, R32	1100	4,600	250,000	66 $\frac{1}{2}$	102	21	1000	960
46P34, Q34, R34	1100	4,800	285,000	66 $\frac{1}{2}$	102	21	1000	960
46P36, Q36, R36	1100	4,950	320,000	66 $\frac{1}{2}$	102	21	1000	960
46P60, Q60, R60	885	7,550	275,000	59 $\frac{1}{2}$	109	28	1100	1030
46P62, Q62, R62	885	7,100	390,000	59 $\frac{1}{2}$	109	28	1100	1030
46P64, Q64, R64	885	7,400	435,000	59 $\frac{1}{2}$	109	28	1100	1030
46P66, Q66, R66	885	7,400	470,000	59 $\frac{1}{2}$	109	28	1100	1030
46P70, Q70, R70	845	10,880	400,000	85 $\frac{1}{2}$	109	28	1450	1330
46P72, Q72, R72	845	10,050	600,000	85 $\frac{1}{2}$	109	28	1450	1330
46P74, Q74, R74	845	10,320	650,000	85 $\frac{1}{2}$	109	28	1450	1330
46P76, Q76, R76	845	10,600	688,000	85 $\frac{1}{2}$	109	28	1450	1330
46P90, Q90, R90	980	13,650	510,000	85 $\frac{1}{2}$	109	36 $\frac{1}{2}$	1750	1680
46P92, Q92, R92	980	12,800	760,000	85 $\frac{1}{2}$	109	36 $\frac{1}{2}$	1750	1680
46P94, Q94, R94	980	13,350	840,000	85 $\frac{1}{2}$	109	36 $\frac{1}{2}$	1750	1680
46P96, Q96, R96	980	13,700	900,000	85 $\frac{1}{2}$	109	36 $\frac{1}{2}$	1750	1680



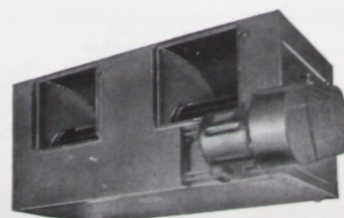
Type 46Q—Floor-Mounted



Type 46R—Suspended



Type 46P—Suspended



Fan Horizontal Unit
Type 27R

FAN UNITS

Available in 6 Sizes—1300 to 19,900 cfm

TYPES 27Q, 27R

Application—Carrier Unit Fans will find ready application in chemical laboratories, and factories, plating plants, pickling rooms, paint factories, tanneries, packing plants, loft buildings, machine shops, foundries, toilets, and countless other locations where the exhausting of fumes, the supplying of clean air and positive circulation of air are of first importance. When used with controls and heating coil, Carrier Unit Fans are ideal as re-circulators and boosters for central air conditioning systems. Equipped with filter box and filters, they become a compact unit for cleaning air in connection with ventilation and circulation.

Type 27Q Fan Units—Consist of a casing, fan and drive assembly and may be used for any ventilating or air conditioning application within their range of capacities and physical dimensions.

The 27Q and 27R Re-circulation Units—Consist of casing, fan and drive, plus a heating coil section with by-pass damper ahead of the heater. The 27Q re-circulation Unit is available with base section for floor mounting. These units supply a mixture of room air and dehumidified air from a central source. The proportions of this supply being varied by means of a by-pass damper to maintain a constant total volume. The chief function of these units is to permit zone or individual room control of temperature without impairing the air circulation or distribution such as occurs with the usual type of volume damper control. By means of a heating coil, the tempering of dehumidified air is possible, permitting distribution from low velocity outlets.

CAPACITIES AND DIMENSIONS FAN UNITS—TYPE 27R*

Unit No.	Cfm**	Dimensions in inches			Weight in Lb.
		Length	Width	Height	
27R1	1300-3200	34 $\frac{1}{4}$	32 $\frac{3}{4}$	23 $\frac{1}{4}$	387
27R2	2600-6400	53 $\frac{1}{2}$	34 $\frac{1}{2}$	23 $\frac{1}{4}$	561
27R3	3900-9600	73 $\frac{1}{2}$	36 $\frac{1}{2}$	23 $\frac{1}{4}$	740
27R6	5500-13,300	66 $\frac{1}{2}$	46 $\frac{1}{2}$	30 $\frac{3}{4}$	860
27R7	8250-19,900	92 $\frac{1}{4}$	47 $\frac{3}{4}$	30 $\frac{3}{4}$	1135
27R9	8250-19,900	92 $\frac{1}{4}$	48 $\frac{1}{4}$	39 $\frac{1}{4}$	1225

*Type 27R are horizontal units. Type 27Q are vertical units. Dimensions on request.

**At free delivery, depending on fan speed.

AIR CONDITIONING IN SMALL SPACES

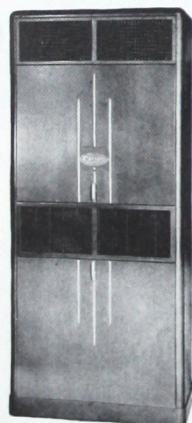
FOR Animal Assay Rooms, Clinics, Display Rooms, Laboratories, Offices, Test Rooms.
All Units Designed for Quiet Operation and Styled for Location in Air-Conditioned Space.



Type 51B2



Type 51C2



Type 50M



Type 39K
Weathermaker



Room Ventilator
Type 56B

AIR CONDITIONING—SELF-CONTAINED

For Installation Within Air-Conditioned Space

5700 Btu Coding Nominal Ratings "Freon-12"	TYPE 51C2
7500 Btu Coding Nominal Ratings "Freon-12"	TYPE 51B1
9300 Btu Coding Nominal Ratings "Freon-12"	TYPE 51B2
14,500 Btu Coding Nominal Ratings "Freon-12"	TYPE 51D2

Application—Self-contained units for complete summer air conditioning—cooling, dehumidifying, filtering, circulation and ventilation.

Operation—Switch arrangement permits unit to supply complete summer air conditioning or ventilate and clean air only. All units have two small efficient quiet motors, one on fan, one on compressor. Room air may be exhausted with special damper arrangement.

Controls—Manual Control on Types 51C2 and 51B1 Automatic Control on Type 51B2 and 51D2.

Installation—All units are designed for window location. Type 51C is installed in window sill. Type 51B and 51D are floor-mounted and are easily adjusted in height to fit window. Electric connections to light socket only service connection needed.

Cabinet—Styled for attractive appearance and easy access to all internal parts.

DIMENSIONS AND WEIGHTS—TYPE 51

Size	Dimensions in Inches			Weight in Pounds
	Width	Depth	Height	
51C	26	15 3/8	14 3/8	245
51B1	34	17 1/2	40	330
51B2	34	17 1/2	40	350
51D2	39	23 1/8	42 1/4	550

Nominal Rating 2 1/2 to 8 Tons—1100 to 2200 cfm

TYPE 50M

Application—This self-contained unit, designed to occupy minimum floor space, provides circulating, filtered, cooled, and dehumidified air. Provision can also be made for heating and humidifying and for outside air connection.

Operation—Slow speed fans, a dynamically balanced compressor, plus thorough sound insulation assure quiet operation. Thermostat provides adjustment of the cooling effect to desired setting. Independent control of the refrigerating unit and the fan is provided.

Installation—Located within air-conditioned space. Water and electrical connections. required. Unit insulated for noise isolation. Available with evaporative condensing unit.

Cabinet—Smooth surface metal with satin gloss, mar-resisting finish of walnut brown.

DIMENSIONS AND WEIGHTS—TYPE 50M

Size	Dimensions, in Inches			Weight in Lb.
	Width	Depth	Height	
50M3	37 3/8	20 5/8	83 15/16	1220
50M4	37 3/8	20 5/8	83 15/16	1220
50M5	47 3/8	20 5/8	90	1520
50M6	47 3/8	20 5/8	90	1520

*Motor speed at 1725 r.p.m.

SUMMER COOLING AND DEHUMIDIFYING*

For Installation Within Air-Conditioned Space

SUSPENDED UNIT—For Chilled Water or Direct Expansion

Nominal Rating 0.5 to 5.5 Tons Cooling—310 to 1850 cfm TYPE 39K

Application—For "Freon-12," well water, chilled water, units designed for small stores and spot cooling for soda fountains, lunch counters and similar applications.

Features—Suspension type, unit uses no floor space, compactness, quietness and efficiency are important advantages.

Capacities—Available in six sizes, units have capacity range from 0.5 to 5.5 tons of cooling effect and 310 to 1850 cfm. See pages 7, 8 and 9 for Refrigerating Units.

VENTILATING, CIRCULATING AND FILTERING

ROOM VENTILATOR—Nominal Rating—200 to 480 cfm TYPE 56B

Available in 2 sizes. Complete, compact and portable. Positive ventilation, air cleaning, and outdoor noise elimination for individual rooms. Special pollen-removal filters are available.

PRODUCTION FOR THE EMERGENCY—AND AFTER



The condition of the air is often one of the most important elements in product processing or manufacturing. Normal air is subject to wide fluctuations which are the underlying cause of many obscure manufacturing troubles. Accuracy of predetermined results and uniformity of quantity production are possible only when atmospheric conditions are controlled.

Effectively offsetting this vitally important factor in industrial production, it has already been demonstrated in more than 200 different kinds of industries that vagaries of weather or atmosphere can be overcome to meet the most severe specifications for precision and uniform quantity production.

Not only the 40 years of research and technical experience of the domestic corps of Carrier engineers and technicians, but also that of Carrier foreign affiliations, are offered as a patriotic duty to American industry.

CONTROL OF THE PHYSICAL REACTION OF MATERIALS

Non-Hygroscopic Products—In the manufacturing of gauges, chronometers, cameras, range finders, optical goods, radio and telephone parts, and similar products, air conditioning is utilized to make close tolerances possible and to assure uninterrupted production regardless of outdoor weather variations.

Hygroscopic Products—Textiles, pharmaceutical, ammunition, woods, map-making, safety glass, plastics, and films are a few of the industries in which air conditioning is a necessity for uniform, accurate and long life products which must meet the high quality of government specifications.

CONTROL OF THE CHEMICAL REACTIONS IN MATERIALS

Synthetic products as rayon, nylon and rubber are processed in conditioned air. Conditioned blast furnace air provides more uniform pig iron at increased rates of production and with the use of less fuel. Crystallization of chemicals in the manufacturing of explosives is closely controlled in conditioned air.

CONTROL OF PHYSIOLOGICAL, BIOLOGICAL AND BACTERIOLOGICAL REACTIONS

Employees in deep mines, doctors and nurses in hospitals, workers in factories and offices, have greater endurance, are more efficient and have a higher morale when working in conditioned air, which assures physical comfort.

Animal assay and experimental rooms are air-conditioned so that the variables introduced by varying weather are eliminated.

Food preservation for meats, fruits and vegetables, fermentation as in dough rooms of bakeries, pest research and control including study of tsetse fly and mallee bug have reached new goals with the application of air conditioning in each of the fields.

Today industrial management is, of necessity, paying attention to the vitally important part that air or atmosphere plays in connection with every material substance, every industrial process, and every thought and action of man. The increased use of power, machines and illumination build up the heat within a plant to such a point as to nullify completely any favorable external influences of climate that may prevail. Hence, in this modern age, production plants can no longer seek geographical refuge.

The 40 years of specialized scientific pioneering of Dr. Willis H. Carrier and his staff of technicians have been devoted entirely to scientific ways and means of control and better utilization of atmosphere or air for every kind of industrial and other purposes. The fruits of this great accumulation of technical information and experience are at the disposal and command of American industry in this national emergency.

AIR CONDITIONING'S *First Name*—





PIONEERING and continuously developing centrifugal refrigeration, dewpoint control, scientific distribution of air, low temperature product conditioning, modern space heating methods, industrial processing systems, standardized unitary systems, evaporative condensers and many other needs to processing and comfort in industry are a few Carrier achievements.

A few of the uses of Carrier Air Conditioning, Refrigeration and Heating in 200 industries are indicated as follows:

Pliability of fibres in the manufacture of textiles. Control of regain (moisture content) of hygroscopic materials. Control of rates and limits of chemical reaction. Control of final moisture content in drying processes. Acceleration of the reproduction cycle of lower forms of animal life in connection with research. Stimulating or retarding the growth of plant life. Preservation of certain food products. Maintenance of conditions favorable to human health, comfort and efficiency.

CARRIER CORPORATION

"Weather Makers to the World"

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